

Material Group	SAPPHIRE CUTTING TOOLS Group	Material Example	Hardness	D.O.C		Feed		Amax [mm ²]	Vc		Advised D.O.C [mm]	Advised Feed [mm/t]	Advised Vc [m/min]	
				min[mm]	max[mm]	min[mm/t]	max [mm/t]		min [m/min]	max [m/min]				
Steel	Non Alloyed	C35, Ck45, 1020, 1045, 1060, 28Mn6	125 HB	0.7	5	0.26	0.68	3.06	180	330	3.6	0.5	240	
			190 HB	0.7	5	0.26	0.68	3.06	180	280	3.6	0.46	220	
			250 HB	0.7	5	0.26	0.61	2.55	180	250	3.6	0.44	200	
	Low Alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	230 HB	0.7	4	0.26	0.61	2.04	120	250	3.6	0.42	180
				280 HB	0.7	4	0.23	0.54	2.04	120	210	3.6	0.4	150
				180 HB	0.7	5	0.26	0.61	2.04	120	280	3.6	0.42	200
				350 HB	0.7	3.5	0.23	0.54	1.7	120	180	3.2	0.4	130
	High Alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.7	4	0.23	0.54	2.04	70	190	3	0.4	140
				280 HB	0.7	4	0.23	0.54	2.04	70	150	3	0.4	120
				320 HB	0.7	3	0.23	0.47	1.36	70	130	2.6	0.37	100
				350 HB	0.7	3	0.23	0.47	1.36	70	110	2.6	0.37	90
	Stainless Steel	Austenitic	304, 316, X5CrNi18-9	180 HB	0.7	5	0.25	0.54	2.04	170	270	3.6	0.33	190
240 HB				0.7	5	0.25	0.54	1.7	160	220	3.6	0.29	170	
Duplex		X2CrNiN23-4, S31500	290 HB	0.7	4	0.23	0.47	1.36	80	150	3	0.32	100	
			310 HB	0.7	4	0.23	0.47	1.36	70	140	3	0.32	90	
Ferritic & Martensitic		6	410, X6Cr17, 17-4 PH, 430	200 HB	0.7	5	0.23	0.54	1.19	170	250	3	0.26	190
				42 HRc	0.7	4	0.23	0.54	1.19	120	190	2.6	0.26	130
Cast Iron	Grey	GG20, GG40, EN-GJL-250, N030B	150 HB	0.7	5	0.19	0.81	3.4	170	250	3.6	0.46	200	
			200 HB	0.7	5	0.19	0.81	3.06	160	230	3.6	0.46	180	
			250 HB	0.7	5	0.19	0.74	3.06	150	210	3.6	0.46	160	
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.7	5	0.19	0.68	2.55	120	250	3.6	0.4	180
				200 HB	0.7	5	0.19	0.68	2.21	120	230	3.6	0.4	160
				250 HB	0.7	5	0.19	0.68	2.04	120	190	3.6	0.4	140
NITI Alloy	Fe, Ni & Co Based	9	Incoloy 800	240 HB	0.7	3	0.25	0.47	1.19	30	50	2.4	0.37	30
			Inconel 700	250 HB	0.7	3	0.25	0.47	1.19	30	50	2.4	0.37	30
			Stellite 21	350 HB	0.7	3	0.25	0.47	1.19	30	40	2.4	0.37	30
	Ti Based	10	T40	-	0.7	3	0.25	0.47	1.19	40	60	2.4	0.4	45
TiAl6V4			-	0.7	3.5	0.25	0.54	1.36	50	70	2.4	0.44	55	
Hardened Materials	Steel Chilled Cast Iron White Cast Iron	11	G-X300CrMo15	55 HRc	0.7	1.5	0.14	0.27	0.51	30	50	1.2	0.2	40
			Ni-Hard 2	400 HB	0.7	2	0.14	0.34	0.68	40	60	1.8	0.24	50
			X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.7	2.5	0.14	0.41	1.02	50	100	2.4	0.33	80
				50 HRc	0.7	2	0.14	0.34	0.68	40	90	1.8	0.26	70
				55 HRc	0.7	1.5	0.14	0.27	0.51	40	80	1.2	0.24	60
Aluminium	Al (>8%Si)	12	AlSi12	130 HB	0.7	6	0.25	0.81	3.06	200	400	3.6	0.53	280